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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/873,597	06/12/1997	JON FAIZ KAYYEM	A-64558-1/RF	2066

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EXAMINER

FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 08/873,597	Applicant(s) KAYYEM, JON FAIZ	
	Examiner BJ Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-22,26,33-35 and 39-45 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 19-22 26 33-35 39-45 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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FINAL ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 May 2004 has been entered.

Status of the Claims

2. This action is in response to papers filed 3 May 2004 in which the previous rejections were traversed. Applicant's arguments have been thoroughly reviewed and are discussed below.

The previous rejections in the Office Action dated 29 October 2003 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a) are maintained.

It is noted that the complete listing of the claims is incorrect because Claim 19 is identified as both canceled and previously amended. Page 2, line 2, recites "Claims 1-**19** (Canceled)" while line 3, recites "19 (Previously Amended)". For purposes of examination, the recitation at line 2 is considered a typographical error and Claim 19 is considered as pending.

Claims 19-22, 26, 33-35 and 39-45 are under prosecution.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 19-22, 26, 33-35, 39-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Kayyem et al (U.S. Patent No. 6,096,273, filed 5 November 1996).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Regarding Claim 19, Kayyem et al disclose an apparatus for the detection of target nucleic acids comprising: a test chamber comprising a first and a second electrode wherein said first electrode comprises a single stranded nucleic acid covalently attached to said electrode via a spacer wherein said electrode further comprises a passivation agent monolayer (Column 23, lines 21-65) and an AC/DC voltage source electrically connected to said first and second electrodes (Column 37, lines 29-42) wherein the nucleic acid is covalently attached via a insulator (i.e. passivation agent attached in the same manner as the conductive oligomer using the same “A” linker , Column 24, lines 59-61).

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Regarding Claim 20, Kayyem et al disclose an apparatus for the detection of target nucleic acids comprising: a test chamber comprising a first and a second electrode wherein said first electrode comprises a single stranded nucleic acid covalently attached to said electrode via a spacer wherein said electrode further comprises a passivation agent monolayer (Column 23, lines 21-65) and said nucleic acid further comprises a covalently attached first electron transfer moiety and an AC/DC voltage source electrically connected to said test chamber (Column 37, lines 29-42) wherein the nucleic acid is covalently attached via a insulator (i.e. passivation agent attached in the same manner as the conductive oligomer using the same "A" linker , Column 24, lines 59-61).

Regarding Claim 21, Kayyem et al disclose the apparatus of Claims 19 20 and 26 further comprising a processor coupled to the electrodes (Column 35, line 66-Column 36, line 47).

Regarding Claim 22, Kayyem et al disclose the apparatus of Claims 19, 20 or 26 wherein said AC voltage source is capable of delivering frequencies from between 1Hz to about 100 Hz (Column 37, lines 29-42).

Regarding Claim 26, Kayyem et al disclose an apparatus for the detection of target nucleic acids comprising: a test chamber comprising a first and a second electrode wherein said first electrode comprises a covalently attached first single stranded nucleic acid and passivation agent monolayer (Column 23, lines 21-65) and a second nucleic acid covalently attached to an electron transfer moiety (Column 25, line 65-Column 26, lines 45) and an AC/DC voltage source electrically connected to said test chamber (Column 37, lines 29-42) wherein the nucleic acid is covalently attached via a insulator (i.e. passivation agent attached in the same manner as the conductive oligomer using the same "A" linker , Column 24, lines 59-61).

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Regarding Claim 33, Kayyem et al disclose the apparatus of Claims 19, 20 or 26 wherein said passivation agent monolayer comprises conductive oligomers (see conductivity of insulators, hence the insulators are also conductive, Column 23, line 66-Column 24, line 28).

Regarding Claim 34, Kayyem et al disclose the apparatus of Claim 27 wherein said passivation agent monolayer comprises an insulator (Column 23, line 55-65).

Regarding Claim 35, Kayyem et al disclose an apparatus for the detection of target nucleic acids comprising: a test chamber comprising an array of electrodes (Column 23, lines 22-34), each electrode comprising a covalently attached single stranded nucleic acid and a passivation agent monolayer (Column 23, lines 21-65) and an AC/DC voltage source electrically connected to said test chamber (Column 37, lines 29-42) wherein the nucleic acid is covalently attached via a insulator (i.e. passivation agent attached in the same manner as the conductive oligomer using the same "A" linker, Column 24, lines 59-61).

Regarding Claim 39, Kayyem et al disclose the apparatus of Claim 35 wherein said passivation agent monolayer comprises conductive oligomers (Column 23, lines 55-65).

Regarding Claim 40, Kayyem et al disclose the apparatus of Claim 35 wherein said passivation agent monolayer comprises insulators (Column 23, lines 55-65).

Regarding Claim 41, Kayyem et al disclose the apparatus further comprising a second nucleic acid covalently attached to an electron transfer moiety (Column 31, lines 40-45 and Column 35, lines 31-52).

Regarding Claim 42, Kayyem et al disclose the apparatus wherein the passivation monolayer comprises alkyl chains (Column 23, lines 64-65 and Column 24, lines 29-43).

Regarding Claim 43, Kayyem et al disclose the apparatus wherein the alkyl chains have the formula C_nH_x wherein n is 1 to 30 and x is 2(n) (Column 8, lines 43-60).

Regarding Claim 44, Kayyem et al disclose the apparatus wherein the passivation agent monolayer comprises terminal groups as claimed (Column 23, lines 64-65 and Column 54, lines 34-58).

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Regarding Claim 45, Kayyem et al disclose the apparatus wherein the passivation agent comprises both conductive oligomers and insulators (see conductivity of insulators, hence the insulators are also conductive, Column 23, line 66-Column 24, line 28).

Response to Arguments

5. Applicant argues that the instant claims are drawn to compositions of nucleic acids covalently coupled to electrodes via insulators which Kayyem et al does not teach. Applicant points to an embodiment of Kayyem et al wherein they covalently attached nucleic acids to electrodes via conductive oligomers. Applicant asserts that Kayyem et al does not explicitly teach nucleic acids attached via passivation agent.

The arguments have been considered but are not found persuasive because, as cited above, Kayyem et al clearly teaches covalent attachment via insulators. Kayyem teaches passivation agents are insulators (Column 23, lines 55-58 and 64-66) passivation attachment via "A" linker (Column 24, lines 59-61) wherein "A" linker comprises covalent attachment to the electrode and nucleic acids (Column 5, lines 27-48). Hence, Kayyem clearly teaches the attachment as claimed.

6. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.129(a) and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.129(a). Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the submission under 37 CFR 1.129(a). See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

7. No claim is allowed.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.


BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
July 21, 2004